	Application No.	Applicant(s)
Notice of Allowability	10/641,700	MARTENS ET AL.
	Examiner	Art Unit	
	John H. Le	2863	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to *Applicant's amendment filed 02/18/2005*.

2. ☒ The allowed claim(s) is/are *3-11,14 and 16-25*.

3. ☒ The drawings filed on *15 August 2003* are accepted by the Examiner.

4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a) ☐ All   b) ☐ Some*   c) ☐ None of the:

       1. ☐ Certified copies of the priority documents have been received.

       2. ☐ Certified copies of the priority documents have been received in Application No. _____ .

       3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

   * Certified copies not received: _____ .

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application. **THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.

6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.

    (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached

        1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____ .

    (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of

       Paper No./Mail Date _____ .

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).

7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)

2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3. ☒ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date *02/18/2005*

4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material

5. ☐ Notice of Informal Patent Application (PTO-152)

6. ☐ Interview Summary (PTO-413), Paper No./Mail Date _____ .

7. ☐ Examiner's Amendment/Comment

8. ☒ Examiner's Statement of Reasons for Allowance

9. ☐ Other _____ .

Response to Amendment

1.   Applicant's amendment filed 02/18/2005 has been entered and carefully

considered.

Claims 3, 4, 6, 8-10, 14, 16-18, 21, and 25 have been amended.

Claims 1, 2, 12, 13, and 15 have been cancelled.

Reasons for Allowance

2.   Claims 3-11, 14, and 16-25 are allowed.

3.   The following is a statement of reasons for the indication of allowable subject

matter:

Regarding claim 3, none of the prior art of record teaches or suggests the

combination of a method for efficiently characterizing an N-port device under test (DUT)

using a vector network analyzer (VNA), wherein N is 2 or greater, wherein the method

including:

(a) dividing the N-port DUT into multiple sub-devices that each include less than

N ports, based on transmission path levels between the N-ports;

(b) performing at least an M-port VNA calibration, where M is equal to a number

of ports on the one of the multiple sub-devices having the greatest number of ports;

wherein step (a) includes dividing the N-port DUT into multiple sub devices

based on transmission path levels between the N-ports; determining a transmission

path level between each pair of the N ports; and grouping ports together as being part

of a same sub-device or a different sub device based on relative transmission levels

between the pairs of ports. It is these limitations as they are claimed in the combination

with other limitations of claim, which have not been found, taught or suggested in the prior art of record, that make these claims allowable over the prior art.

Regarding claim 10, none of the prior art of record teaches or suggests the combination of a method for efficiently characterizing an N-port device under test (DUT) using a vector network analyzer (VNA), wherein N is 2 or greater, wherein the method including:

(b) performing at least an M-port VNA calibration, where M is equal to a number of ports on the one of the multiple sub-devices having the greatest number of ports;

(c) using the VNA to determine S-parameters for each sub-device;

wherein step (b) includes determining a set of error coefficients representative of calibration errors; and

wherein step (c) includes for each sub-device:

(c.1) measuring S-parameters for the sub-device; and

(c.2) removing calibration errors from the measured S-parameters using only a sub-set of the set of error coefficients determined in step (b), the sub-set corresponding to the measured S-parameters. It is these limitations as they are claimed in the combination with other limitations of claim, which have not been found, taught or suggested in the prior art of record, that make these claims allowable over the prior art.

Regarding claim 14, none of the prior art of record teaches or suggests the combination of a method to be performed with a vector network analyzer (VNA), the method for efficiently characterizing an N-port device under test (DUT), wherein N is 2

or greater, and wherein the N-port DUT is capable of being treated as multiple sub-devices that each include less than N ports, wherein the method including:

(b) presenting at least one menu that allows selection of which S-parameters are of interest for each sub-device;

(c) accepting inputs from a user or a test controller that specify which S-parameters are of interest for each sub-device; and

(d) determining the S-parameters of interest for each sub-device as identified at step (c), without determining the S-parameters that are not of interest;

wherein step (b) comprises presenting a menu that includes links to the following sub-menus:

a sub-menu that allows selection of which ports of the VNA should be used to perform full S-parameter measurements;

a sub-menu that allows selection of which ports of the VNA should be used to perform reflection only S-parameter measurements; and

a sub-menu that allows selection of any possible combination of the S-parameters corresponding to a sub-device. It is these limitations as they are claimed in the combination with other limitations of claim, which have not been found, taught or suggested in the prior art of record, that make these claims allowable over the prior art.

Regarding claim 17, none of the prior art of record teaches or suggests the combination of a method to be performed with a vector network analyzer (VNA), the method for efficiently characterizing an N-port device under test (DUT), wherein N is 2

or greater, and wherein the N-port DUT is capable of being treated as multiple sub-devices that each include less than N ports, wherein the method including:

(a) performing at least an M-port VNA calibration, where M is equal to a number of ports on the one of the multiple sub-devices having the greatest number of ports;

(c) accepting inputs from a user or a test controller that specify which S-parameters are of interest for each sub-device; and

(d) determining the S-parameters of interest for each sub-device as identified at step (c), without determining the S-parameters that are not of interest;

wherein step (a) includes determining a set of error coefficients representative of calibration errors; and

wherein step (d) includes

(d.1) measuring the S-parameters of interest for each sub-device; and

(d.2) removing calibration errors from the measured S-parameters using only a sub-set of the set of error coefficients determined in step (a), the sub-set corresponding to the measured S-parameters of interest as accepted in step (c). It is these limitations as they are claimed in the combination with other limitations of claim, which have not been found, taught or suggested in the prior art of record, that make these claims allowable over the prior art.

Regarding claim 21, none of the prior art of record teaches or suggests the combination of a method for efficiently characterizing multiple devices using an N-port vector network analyzer (VNA), wherein N is 2 or greater, and each device includes less than N ports, wherein the method comprising:

(a) performing a parent calibration and storing a corresponding set of error coefficients in working memory;

(c) accepting inputs that specify which S-parameters are of interest for each device; and

(d) determining the S-parameters of interest for each device as identified at step (c), without determining the S-parameters that are not of interest, as follows:

(d.1) measuring the S-parameters of interest for each device; and

(d.2) using only a sub-set of the set of error coefficients stored in working memory in step (a) to remove calibration errors from the measured S-parameters, without recalling error coefficients from static storage memory, the sub-set corresponding to the measured S-parameters of interest as specified in step (c). It is these limitations as they are claimed in the combination with other limitations of claim, which have not been found, taught or suggested in the prior art of record, that make these claims allowable over the prior art.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Contact Information

4.   Any inquiry concerning this communication or earlier communications from the examiner should be directed to John H. Le whose telephone number is 571-272-2275. The examiner can normally be reached on 8:00 - 4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, John E Barlow can be reached on 571-272-2269. The fax phone number

for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the

Patent Application Information Retrieval (PAIR) system. Status information for

published applications may be obtained from either Private PAIR or Public PAIR.

Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see http://pair-direct.uspto.gov. Should

you have questions on access to the Private PAIR system, contact the Electronic

Business Center (EBC) at 866-217-9197 (toll-free).

John H. Le

Patent Examiner-Group 2863

March 12, 2005

MICHAEL NGHIEM
PRIMARY EXAMINER